Malignant fibrous histiocytoma of the chest wall: A rare differential

Dear Editor,

The most common differential diagnosis of a chest wall mass with rib destruction is metastasis (usually from cancers of the breast, lung, kidney, or thyroid) followed by multiple myeloma.

A 70-year-old man, a hypertensive and a diabetic, controlled on medications, presented to us with a painless mass in the right lateral chest wall, of seven months' duration. The clinical examination revealed a 9 × 8 cm, well-circumscribed mass lesion originating from the fifth, sixth, and seventh ribs, with a large soft tissue component [Figure 1]. A CT scan of the chest confirmed the lesion to be originating mainly from the fifth rib, with involvement of the adjacent fourth and sixth ribs, compressing the adjacent lung parenchyma [Figure 2]. A trucut biopsy from the mass revealed a poorly differentiated tumor, which on immunohistochemistry correlation was suggestive of a high-grade malignant fibrous histiocytoma (MFH) (Immunopositive to vimentin, EMA, and CD 68, negative to keratin, Melan A, and HMB-45. Fifty percent of the tumor cells showed a strong nuclear positivity to Ki-67) [Figure 3]. The patient was taken up for surgery and a radical *en-bloc* excision of the chest wall tumor was performed, which included the fourth to sixth ribs, along with a wedge of the adjacent lung parenchyma [Figure 4]. The resultant chest wall defect was reconstructed using a Prolene mesh. A decision was made to achieve a skin and soft tissue cover using a local rotation flap, considering his elderly age and the associated comorbid conditions. The final histopathology confirmed the diagnosis of a primary MFH resected with clear margins. The patient was

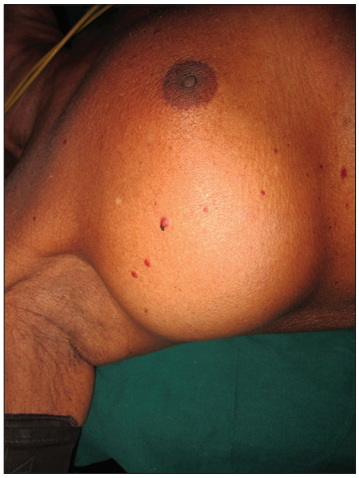

Figure 1: Clinical photograph at presentation

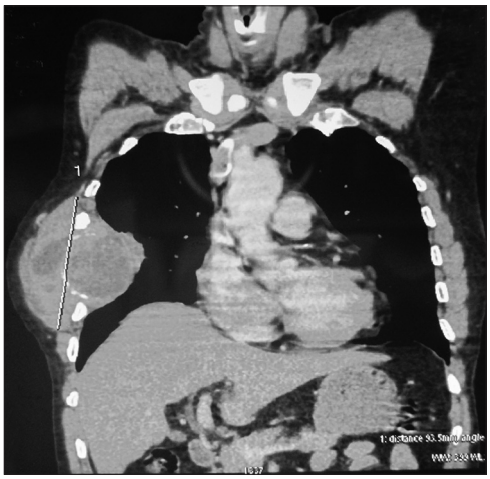

Figure 2: CT scan of the chest showing the mass lesion originating mainly from the fifth rib, with involvement of the adjacent fourth and sixth ribs, compressing the adjacent lung parenchyma

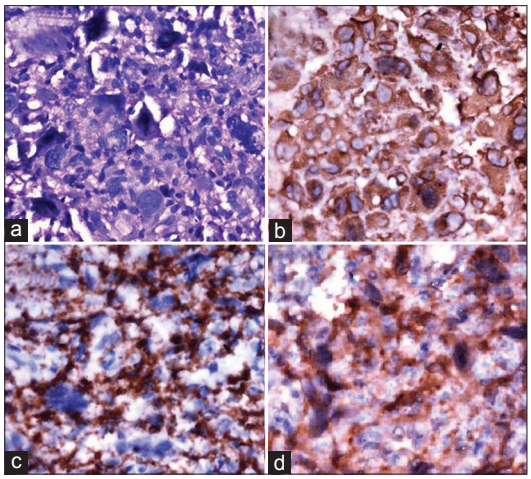

Figure 3: (a) H and E ×40 - A fibrocollagenous tissue and skeletal muscle bundles infiltrated by a poorly differentiated tumor, composed of clusters and sheets of oval to spindle cells with hyperchromatic polymorphic nuclei, scattered brownish pigmentation, and tumor giant cells. (b) IHC × 100 - Tumor cells showing immunopositivity to vimentin. (c) IHC × 100 - Tumor cells showing immunopositivity to CD 68. (d) IHC × 100 - Tumor cells showing immunopositivity to EMA

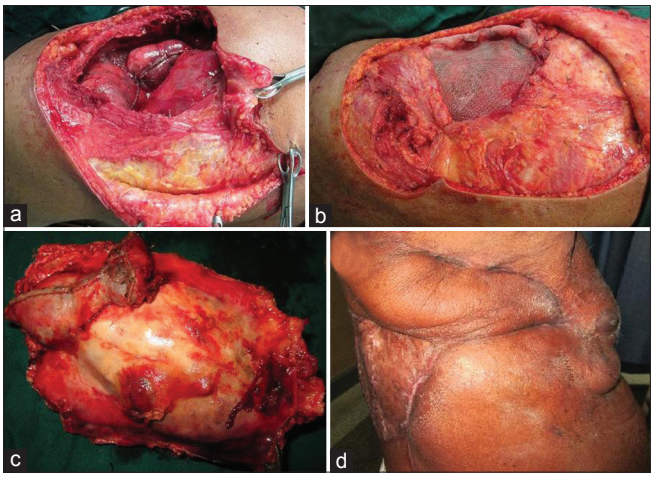

Figure 4: (a) Intraoperative photograph following tumor excision. (b) Intraoperative photograph following mesh reconstruction of the chest wall. (c) Specimen photograph showing the *en-bloc* resection of the tumor along with the fourth to sixth ribs. (d) Postoperative clinical photograph

offered, but did not wish to consider the option of adjuvant radiotherapy. He was disease-free for a year, following which he developed right-sided hemorrhagic pleural effusion and opted to be on supportive care.

Malignant fibrous histiocytoma is a deep-seated pleomorphic sarcoma of uncertain origin, occurring in middle-aged adults. It is commonly known to originate in the deep fascia and skeletal muscles of the extremities followed by the trunk and the head and neck.[1] The involvement of the chest wall is uncommon.[2]

Surgery in the form of wide excision is the primary modality of management of MFH, including those originating from the chest wall.[3] Multidisciplinary approaches involving the use of radiotherapy and chemotherapy have been utilized in various combinations, in an attempt to impact the overall survival.[4] However, the experience with chemotherapy and radiotherapy is insufficient; the number of cases and the reported follow-up is inconsistent to allow conclusions to be drawn as to their effectiveness. MFH has a high propensity for local recurrences (44%) and distant metastasis (42%). The prognostic factors that are known to adversely impact survival in patients with MFH include, a tumor size > 5 cm, deep-seated location, high histological grade, and a high stage, based on the American Joint Committee on Cancer Staging System,[5] all of which were present in our patient. In conclusion, a primary MFH must to be considered as a differential in a patient with chest wall lesion and rib destruction; such a clinical scenario warrants a radical curative approach.

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